PATENT
ATTORNEY DOCKET NO. 50254/005002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Toner et al.	Confirmation No.:	8260
Serial No.:	10/529,453	Art Unit:	1651
Filed:	December 19, 2005	Examiner:	Deborah K. Ware
Customer No.:	21559		
Title:	MICROFLUIDIC DEVICE FOR CELL SEPARATION AND USES THEREOF		

Commissioner for Patents
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DECLARATION OF DR. RAVI KAPUR UNDER 37 C.F.R. § 1.132
TRAVERSING GROUNDS OF REJECTION

I declare:

1. I am an inventor of the subject matter of this application. I have review the information disclosed in Spence et al. U.S. Patent Publication No. 2002/0005354 and Chou et al. Proc. Natl. Acad. Sci. USA 1999, 96:11-13. My curriculum vita is attached.

2. I have read the characterization of Spence et al. and Chou et al. provided in the Office Action mailed on July 27, 2007 in connection with the above-referenced application.

3. Neither Spence et al. nor Chou et al. teaches the separation of cells based on size using a microfluidic device comprising obstacles separated by gaps. The support pillars shown in Fig. 6 of Spence et al. and Fig. 1 of Chou et al. function only to prevent

the microfluidic channel from collapsing, i.e., they only serve to prevent the lid from caving into the microfluidic channel. In Spence et al., a cell is sorted as it passes through a detection region. The pillars in Fig. 6 of Spence are not located in the detection region and are not involved in the cell sorting process that occurs in the detection region. Chou et al. describes the sorting of DNA molecules and not cells. DNA molecules in Chou et al. are sorted at a T-junction that does not contain pillars, and the pillars are not involved in the sorting that occurs at the T-junction. Furthermore, as a result of passing through the pillars in the devices depicted in Fig. 6 of Spence et al. and Fig. 1 of Chou et al., adult, enucleated red blood cells and cells smaller than adult, enucleated red blood cells would not be directed in one direction, and cells larger than adult, enucleated red blood cells would not be directed in a second direction.

4. Neither Spence et al. nor Chou et al. discloses preferential binding of cells to obstacles in a microfluidic channel. As described above, cells or molecules are separated as they pass through a detection region or T-junction. Furthermore, as stated above, the pillars present in Fig. 6 of Spence et al. and Fig. 1 of Chou et al. support the channel to prevent it from collapsing as cells and molecules flow through the channel to be sorted at the detection region or T-junction. In order to pass through the detection region or T-junction, the cells and molecules must not be bound to the channel or the pillars supporting it. Thus, the pillars described in Spence et al. and Chou et al. are not designed to bind cells preferentially.

5. All statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true; and further these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patents issued thereon.

December 3, 2007
Date

Ravi Kapur
Dr. Ravi Kapur